



BUSINESS METHOD FOR E-COMMERCE THROUGH
CUSTOMIZED ACTIVITY-BASED ADVERTISING

5 BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to communication systems and, in particular, to an
10 apparatus and method for delivering selected advertisements within interactive
communications systems.

Description of the Related Art

15 Recently, a wide range of interactive devices have been developed to provide
information to consumers. These interactive devices include, for example, computers
connected to various computer on-line services, interactive kiosks, interactive
television systems and the like. In particular, the popularity of computer on-line
services has grown immensely in popularity over the last decade.

20 Computer on-line services are provided by a wide variety of different companies. In
general, most computer on-line services are accessed via the Internet. The Internet is a
global network of computers. The structure of the Internet is a network backbone with
networks branching from the backbone. These branches, in turn, have networks
25 branching from them, and so on. Routers move information packets from network to
network, until the information packets reach their destination.

One popular part of the Internet is the World Wide Web. The World Wide Web
contains computers that display graphical and textual information. Computers that
30 provide information on the World Wide Web are typically called "websites." A

website is defined by an Internet address which has an associated electronic page, often called a "home page." Generally, a home page is an electronic document that organizes the presentation of text, graphical images, audio and video into a desired display. These websites are operated by a wide variety of entities that are typically
5 called "content providers."

A user may access the Internet using a home personal computer (PC) equipped with a conventional modem or router. Special interface software is installed within the PC so that when the user wishes to access the Internet, an attached modem is automatically
10 instructed to dial the telephone number associated with the local Internet host server. The user can then access information at any address accessible over the Internet. Two well-known software interfaces, for example, are the Netscape Navigator developed by Netscape, Inc. and the Microsoft Internet Explorer developed by Microsoft Corporation.

15 Information exchanged over the Internet is typically encoded in HyperText Mark-up Language (HTML) format. The HTML format is a scripting language that is used to generate the home pages for different content providers. In this setting, a content provider is an individual or company that places information (content) on the Internet so that it can be accessed by others. As is well known in the art, the HTML format is a
20 set of conventions for marking different portions of a document so that each portion appears in a distinctive format. For example, the HTML format identifies or "tags" portions of a document to identify different categories of text (e.g., the title, header, body text, etc.). When a web browser accesses an HTML document, the web browser
25 reads the embedded tags in the document so it appears formatted in the specified manner.

An HTML document can also include hyper-links that allow a user to move from one document to another document on the Internet. A hyper-link is an underlined or

otherwise emphasized portion of text which, when selected using an input device such as a mouse, activates a software connection module which allows the user to jump between documents (i.e., within the same website or to other websites). Hyper-links are well known in the art, and are sometimes referred to as anchors.

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Although the Internet and the World Wide Web, together with other interactive devices, are used widely to share information among different users, the full range of possibilities for use of these interactive computer services have not yet been fully developed.

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As the popularity of the Internet and the World Wide Web has increased over the years, more companies are trying to find ways of promoting their product in a cost-effective manner. Thus, there has been a tremendous proliferation of corporate advertising across the Internet. For example, some companies such as Yahoo

15 Corporation offer free services, such as the ability to search for particular sites on the Internet, but post advertising messages to consumers to help offset the cost of their service. A tremendous amount of advertising is wasted on promoting goods or services to an improper audience.

20 Methods have now been developed to specifically target advertising to those individuals most likely to purchase the goods or services being offered. These methods operate by developing a consumer profile including certain demographic information and individual preferences. By tracking the responses of individual consumers, these methods can even make it possible for advertisers to know how
25 effective a particular ad has become.

Unfortunately, there is currently no mechanism for determining when an individual user would be most interested in a particular category of advertised goods or services. Therefore, the present invention provides a method of determining an appropriate

time to deliver a particular advertisement. The invention also provides an improved method of determining appropriate advertisements or other content to be delivered. More particularly, the method may deliver advertisements or other information to the consumer based upon the consumer's present activity or location. The method may
5 include delivering the information to the consumer during or after detecting the consumer's activity or location. Furthermore, the method may utilize the consumer's activity and location history in selecting appropriate advertisements or information to deliver. In a preferred embodiment, the method includes delivering advertisements or information selected on the basis of both a consumer profile and the consumer's
10 current or previous activity or location.

SUMMARY OF THE INVENTION

The present invention provides a method for providing targeted advertising content.
15 An event or activity detection system detects a change in one or more physical parameter that is representative of an event associated with a given environment. An advertisement is selected having a predetermined association with the event detected, wherein the event may be represented by an event code. The advertisement is then delivered to a communicating device associated with the given environment. The
20 communicating device communicates with a consumer within the given environment by audio performance or video display, such as where the communicating device is a radio, computer, television or intercom within the given environment. Preferably, an advertisement is selected by searching a database of advertisements and events associated with the advertisements. In a preferred embodiment, a consumer profile
25 associated with the communicating device is identified and an advertisement is selected that has a predetermined association with the event detected and one or more aspect of the consumer profile.

The invention also provides an onboard data processing system comprising detection means for detecting a change in one or more physical parameter that is representative of an event associated with a given environment, selection means for selecting an advertisement having a predetermined association with the event detected, and
5 delivery means for delivering the advertisement to a communicating device associated with the given environment. The system may further comprise identification means for identifying a consumer profile associated with the communicating device, and selection means for selecting an advertisement having a predetermined association with the event detected and one or more aspect of the consumer profile.

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The invention further provides a computer program product including instructions embodied on a computer readable medium. The instructions comprise detecting instructions for detecting a change in one or more physical parameter that is representative of an event associated with a given environment, selection instructions
15 for selecting an advertisement having a predetermined association with the event detected, and delivery instructions for delivering the advertisement to a communicating device associated with the given environment. Additional instructions may comprise identification instructions for identifying a consumer profile associated with the communicating device, and selection instructions for
20 selecting an advertisement having a predetermined association with the event detected and one or more aspect of the consumer profile.

Finally, the invention provides an advertisement provider computer for selecting advertisements to be transferred via the internet, comprising an advertising module
25 executable at the advertisement provider computer, wherein the advertising module is configured to select an advertisement based on consumer activity within a given environment and configured to transfer the advertisement to the consumer. The advertising module may be further configured to accept a consumer event code from the consumer. Further, the advertising module may be further configured to accept a

content provider information, wherein the content provider information comprises content provider demographic information, and wherein the advertisement is selected on the basis of consumer activity and one or more additional criteria selected from the group consisting of consumer demographic information and content provider demographic information. The advertisement provider computer may further include an advertisement database configured to store advertisement information.

The foregoing and other objects, features and advantages of the invention will be apparent from the following more particular description of a preferred embodiment of the invention, as illustrated in the accompanying drawing wherein like reference numbers represent like parts of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a high level block diagram of the preferred system of the present invention and illustrates the interaction between the consumer computer, content provider computer, and advertisement provider computer.

FIG. 2 is a block diagram of the preferred system of the present invention showing the interaction of many consumer computers and content provider computers with an advertisement provider computer.

FIG. 3 is a high level flow diagram of the preferred process for sending electronic information and custom-selected advertisements to a consumer computer.

FIG. 4 is a block diagram of the preferred system of the present invention showing the flow of information among the consumer computer, content provider computer and advertisement provider computer through a communication medium.

FIG. 5 is a flow diagram of the preferred process of registering a consumer with an advertisement provider.

FIG. 6 is a flow diagram of the preferred process of registering a content provider
5 with an advertisement provider.

FIG. 7 is a flow diagram of the preferred process whereby a consumer accesses a content provider and is thereafter sent an electronic document and customer advertisement.

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FIG. 8 is a detailed flow diagram of the preferred process whereby the advertisement provider computer delivers the customized advertisement to the consumer computer.

FIG. 9 is a block diagram of an alternative embodiment of the present invention
15 wherein the customized advertisement is sent through the content provider computer prior to reaching the consumer computer.

FIG. 10 is a block diagram of an alternative embodiment of the present invention wherein the content provider computer requests the customized advertisement and the
20 advertisement computer then sends the customized advertisement directly to the consumer computer.

FIG. 11 is a block diagram of another embodiment of the present invention showing the flow of information among the consumer computer, content provider computer
25 and advertisement provider computer through a communication medium.

DETAILED DESCRIPTION

The system of the present invention overcomes the difficulties discussed above by providing an on-line advertising service that can target specific advertisements to particular consumers based upon a detected event, such as the consumer's activity or location. In particular, the present invention is a communications system and method for delivering selected advertisements to an individual consumer in an environment that includes an activity or location detection system, such as a home automation system.

The present invention includes a communications system having at least an advertisement provider and a consumer system in communication with each other, and optionally including a content provider. The consumer system of the present invention includes one or more electronic communications device, where the term “electronic communications device”, as used herein, shall include but not be limited to a computer connected to an on-line service, an interactive television system, internet radio, internet-connected appliances, network-connected electronic white goods, other electronic communication devices, and combinations thereof. In particular, the consumer system must also include, or be in communication with, one or more event detection device or system capable of communicating a signal to the communications system. The term “event”, as used herein, shall include, but not be limited to, a physical action, occurrence, presence, or state that is observable by one or more sensors, specifically including the physical activities, movements and locations of individuals within a given environment. However, the term “event”, as used herein, does not include online events, such as merely accessing a particular web site.

In one preferred embodiment, the invention is directed to delivering custom advertisements to consumers who have or use one or more electronic communications

device, such as a computer, to receiving information offered by different content providers existing on a network, such as the global computer network known as the Internet. Preferably, when a consumer accesses a content provider, the content provider transmits an electronic document to the consumer. Embedded within the

5 electronic document is an advertisement request. When the consumer's computer displays the electronic document, the embedded advertisement request directs the consumer computer to communicate with an advertisement provider. In response, the advertisement provider provides a selected advertisement. Preferably, the advertisement provider will track the consumer's response to the selected

10 advertisement.

In an alternative embodiment, the advertisement provider "pushes" an advertisement to a particular consumer system based upon a detected event, such as the consumer's activity or location, without the consumer accessing a content provider and/or without

15 sending an advertisement request to the advertisement provider. Therefore, the advertisement provider may select and send an advertisement to the consumer system at any time, at any frequency, or in response to any event, so long as one or more of the advertisements are selected based upon an event detected in the consumer's given environment.

20 The advertisement provider operates a computer that is also connected to the Internet. According to the present invention, the communication from the consumer's computer to the advertisement provider's computer includes an indication of a detected event, such as the consumer's current or previous activity or location,

25 regardless of whether or not the communication includes an advertisement request. The advertisement provider's computer then sends to the consumer an advertisement that is selected on the basis of the detected event. For example, when the consumer accesses a content provider while the oven located in their kitchen is operating, then the advertisement provider's computer would select an advertisement for ovens,

cooking products, recipe books, oven cleaners, grocery discounts or any other goods or services that are related in one manner or another to operation of an oven.

Optionally, the advertisement provider's computer may also store demographic
5 information about the consumer, and send custom-selected advertisements to the
consumer based at least in part on the consumer's demographic profile. For example,
a consumer with a demographic profile indicating an interest in farming might be sent
selected advertisements for farm products by the advertisement provider. It is also
possible for customer responses to the advertisements and requests for more
10 information about the advertised goods or services to be monitored.

In one embodiment, a consumer that wishes to receive custom-selected
advertisements will first register with the advertisement provider. During the
registration process, the consumer may grant permission and set up the consumer
15 system to transmit activity or location information to the advertisement provider's
computer. Furthermore, the consumer may grant permission during the registration
process for the advertisement provider to "push" advertisements under various terms
and conditions. In return, the advertisement provider assigns the consumer a unique
member code. Preferably, the registration process also includes entering pertinent
20 demographic information about the consumer into the advertisement provider's
demographic database for later use. In an alternate embodiment, the consumer is sent
unique software that enhances the consumer's Internet browser so that custom
advertisements can be merged with electronic documents obtained from the content
provider.

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The content provider websites may also register with the advertisement provider in
order to receive the selected advertisement services. During registration, the
advertisement provider assigns a custom member code to the content provider, creates
a program called a "content provider script" for each content provider, and transfers

an "advertisement request" to the content provider which identifies the content provider script. Preferably, the content provider script contains the content provider's member code. The advertisement request, on the other hand, contains commands that invoke the content provider script.

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After obtaining the advertisement request, the content provider embeds the advertisement request into its electronic documents. When a registered consumer accesses a content provider's website, the content provider website transfers the electronic document and the embedded advertisement request to the consumer's computer. The embedded advertisement request directs the consumer computer to invoke the referenced content provider script in the advertisement provider computer. The advertisement provider executes the content provider script and obtains the content provider member code. The advertisement provider uses the content provider member code to track the number of advertisements displayed by a particular content provider.

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In addition to executing the content provider script, the advertisement provider also obtains the consumer's member code, if any, and detected event information, perhaps in the form of a predetermined event code, from the consumer computer. The advertisement provider uses the event code as a basis to select an appropriate advertisement and/or uses the consumer member code to identify the consumer's demographic profile and preferences as a basis to select an appropriate advertisement. The advertisement provider then sends the custom-selected advertisement to the consumer computer. The consumer computer then merges the content provider's electronic document with the advertisement provided by the advertisement provider to create a single displayed document to the consumer.

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Another optional feature of the invention is directed to monitoring the particular advertisements that are viewed by particular consumers. With this information,

advertisers can pay for advertising directed at specific demographic target groups. Additionally, advertisers may be billed by the advertisement provider based on actual delivery of the advertisements to pertinent consumers.

5 The invention also supports custom advertisements or information that can contain hyper-links to other information. The hyper-links typically direct the user's Internet browser to access different websites on the Internet. For example, if a consumer wishes to obtain additional information about an advertised product or service, the consumer may simply use a mouse to select an embedded hyper-link in the custom
10 advertisement and be immediately transported to an advertiser's website. At the advertiser's website, the user may receive a directed sales pitch, more information or a purchase request form. An additional feature of the invention allows the advertisement provider to monitor the number of advertisements viewed by consumers associated with a particular content provider. With this information, the
15 content providers can receive advertising revenue based on the number of consumers who access their websites. The invention thus prevents the content providers from having to generate advertising data, from having to individually contact advertisers, from having to negotiate advertising payment fees, and from having to maintain an advertising administrative staff.

20 Another aspect of the invention relates to the inclusion of an internet service provider ("ISP") to the communications system. An ISP is a service that provides Internet access to consumers. Examples of Internet providers include American On-line, the Microsoft Network, Prodigy and Compuserve. Many users pay monthly access fees to
25 the Internet providers to obtain local telephone connections, a variety of help services and an organized format for accessing the Internet.

When a consumer registers with the advertisement provider, this aspect of the present invention provides for the advertisement provider's computer to obtain information

about the consumer's ISP and stores this information in the consumer's demographic profile. The system of the present invention can then monitor the number of advertisements viewed by consumers associated with a particular ISP. Accordingly, the system of the present invention can compensate an ISP based on the number of advertisements viewed by its consumers.

The present invention provides an apparatus and method for transmitting custom-selected advertisements to a consumer. In a preferred embodiment, the custom-selected advertisements are generated by an advertisement provider computer and sent to a consumer whenever the consumer accesses a content provider website. Although the present invention is described herein with reference to a preferred interactive communications system, the invention is not so limited, and can be used in a variety of other contexts in which it is desirable to select and send targeted advertisements to consumers.

I. Glossary of Terms and Acronyms

The following terms and acronyms are used throughout the detailed description:

Client-Server. A model of interaction in a distributed system in which a program at one site sends a request to a program at another site and waits for a response. The requesting program is called the "client," and the program that responds to the request is called the "server." In the context of the World Wide Web, the client is typically a "Web browser" which runs on a user's computer; the program which responds to Web browser requests at a website is commonly referred to as a "Web server."

Common Gateway Interface (CGI). A standard interface that specifies how a Web server (or possibly another information server) launches and interacts with external programs (such as a database search engine) in response to requests from clients. For

example, when a consumer Web user fills out an on-screen form which is linked to a database query, the on-screen form will invoke a common gateway interface program (called a CGI "script") which processes the desired database query.

- 5 Digital Cash. In digital cash commerce, a consumer who maintains an electronic bank account and a payee who maintains an electronic bank account can engage in on-line transactions. When the consumer purchases a good or service with digital cash, the consumer's bank account is automatically debited and the payee's bank account is automatically credited. Likewise, when providing a digital cash refund or transfer, the
- 10 payee can debit its own bank account while crediting the consumer's bank account.

- Internet. A collection of interconnected (public and/or private) networks that are linked together by a set of standard protocols to form a distributed network. While this term is intended to refer to what is now commonly known as the Internet, it is
- 15 also intended to encompass variations that may be made in the future, including changes and additions to existing standard protocols.

- HyperText Markup Language (HTML). A standard coding convention and set of codes for attaching presentations and linking attributes to informational content
- 20 within documents. (HTML is currently the primary standard used for generating Web documents.) During a document authoring stage, the HTML codes (referred to as "tags") are embedded within the informational content of the document. When the Web document (or "HTML document") is subsequently transferred from a Web server to a Web browser, the codes are interpreted by the Web browser and used to parse and
- 25 display the document. In addition to specifying how the Web browser is to display the document, HTML tags can be used to create links to other websites and other Web documents (commonly referred to as "hyper-links").

Hypertext Transport Protocol (HTTP). The standard World Wide Web client-server protocol used for the exchange of information (such as HTML documents, and client requests for such documents) between a Web browser and a Web server. HTTP includes a number of different types of messages that can be sent from the client to the server to request different types of server actions. For example, a "GET" message, which has the format GET <URL>, causes the server to return the document or file located at the specified Universal Resource Locator (URL).

Persistent Client State Cookies (Cookie). A file stored on the client computer that contains information such as user names and preferences. In the preferred embodiment, the Cookie in the consumer computer stores a member code that uniquely identifies each consumer.

Plug-in. A plug-in is a custom application that allows developers to customize or enhance features of Web browsers and Web servers. Thus, a plug-in works in concert with the Web browser or a Web server to provide additional features. Typically, a HTML tag exists in a HTML document that commands the Web browser or Web server to launch the plug-in. For example, a HTML tag may command a Web browser to execute a plug-in that communicates with an external database.

Transmission Control Protocol/Internet Protocol (TCP/IP). A standard Internet protocol (or set of protocols) that specifies how two computers exchange data over the Internet. TCP/IP handles issues such as packetization, packet addressing, handshaking and error correction.

Uniform Resource Locator (URL). A unique address that fully specifies the location of a file or other resource on the Internet. The general format of a URL is protocol://machine address:port/path/filename. The port specification is optional, and if no port is entered by the user, the Web browser defaults to the standard port for

whatever service is specified as the protocol. For example, if HTTP is specified as the protocol, the Web browser will use the HTTP default port.

World Wide Web ("Web"). Used herein to refer generally to both (1) a distributed
5 collection of interlinked, user-viewable hypertext documents (commonly referred to
as "Web documents" or "electronic pages" or "home pages") that are accessible via
the Internet, and (2) the client and server software components that provide user
access to such documents using standardized Internet protocols. Currently, the
primary standard protocol for allowing applications to locate and acquire Web
10 documents is the HyperText Transfer Protocol (HTTP), and the electronic pages are
encoded using the HyperText Markup Language (HTML). However, the terms "Web"
and "World Wide Web" are intended to encompass future markup languages and
transport protocols that may be used in place of or in addition to the HyperText
Markup Language and the HyperText
15 Transfer Protocol.

II. Overview Of The Preferred Interactive Communication System

This section provides an overview of an interactive communication system in a
20 preferred embodiment of the present invention having a combination of the inventive
features described above. Accordingly, the following description should be taken to
limit the scope of the invention, but should be taken as an example.

A block diagram of the preferred interactive communication system is shown in FIG.

25 1. The interactive communication system **10** includes a consumer computer **12**, a
content provider computer **14** and an advertisement provider computer **18** which
communicate with each other by use of a communication medium **20**. In operation, a
consumer directs the consumer computer **12** to communicate with the content
provider computer **14** via the communication medium **20**. Once the consumer

computer 12 establishes a communication link with the content provider computer 14, the content provider computer 14 transfers an electronic page 32 to the consumer computer 12. The preferred electronic page 32 contains an embedded advertisement request 26.

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When the consumer computer 12 receives the electronic page 32, it executes the embedded advertisement request 26. The embedded advertisement request 26 directs the consumer computer 12 to establish a communications link with the advertisement provider computer 18. Furthermore the embedded advertisement request 26 directs the advertisement provider computer 18 to execute a content provider script (not shown). The content provider script exists on the advertisement provider computer 18 and contains a content provider member code (not shown). The advertisement provider computer 18 uses the content provider member code to track the number of advertisements viewed by the consumer computers 12 connected to a particular content provider computer 14.

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In addition, the consumer computer 12 contains a consumer event code 21 that identifies the consumer's current or previous activity or location and, optionally, a consumer member code 22 that uniquely identifies the consumer. In order to generate an event code 21, it is necessary for the consumer computer 12 to include, or communicate with, a physical event detection system 13. The advertisement provider computer 18 obtains the consumer event code 21 and, if available, the consumer member code 22. If a member code is received, then the consumer's member code 22 is used to access the consumer's profile in a demographic database (not shown). Based on the consumer's activity, location, profile or a combination thereof, the advertisement provider computer 18 selects an appropriate advertisement 30. The advertisement provider computer 18 then sends the custom-selected advertisement 30 to the consumer computer 12. As discussed in more detail below, the consumer computer 12 merges the electronic page 32 and selected advertisement 30.

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As shown in FIG. 2, a single advertisement provider computer **18** also supports an interactive communication system with multiple consumer computers **12** and multiple content provider computers **14**. As different consumer computers **12** access different content provider computers **14**, the content provider computers **14** communicate with the advertisement provider computer **18** as discussed above. In the preferred embodiment, the advertisement provider computer **18** is configured to respond to each of the content provider **14** computers in a timely manner. It should be noted that a single advertisement provider **18** can manage requests from numerous content providers and act like a "clearing house" for advertisements.

Referring to FIG. 3, an overview of the process of a consumer requesting an electronic document is shown. At start state **300** the process initializes and moves to state **302** wherein the consumer computer **12** requests an electronic page **32** from the content provider computer **14**. As discussed in more detail below, the consumer computer **12** uses internet browsing software (not shown) to access the content provider's URL address. The consumer browser software then accesses an electronic document **32** stored on the content provider computer **14**.

Moving to state **304**, the content provider computer **14** sends the electronic document **32** and the embedded advertisement request to the consumer computer **12**. Proceeding to state **306**, the consumer computer executes the advertisement request **26** and establishes a communications link with the advertisement provider computer **18**. Proceeding to state **308**, the advertisement request **26** directs the advertisement provider computer **18** to execute a content provider script that contains the content provider member code. In addition, during state **308**, the advertisement provider computer **18** obtains the consumer event code **21** and the consumer member code **22** stored on the consumer computer **12**.

Proceeding to state **310**, the advertisement provider computer **18** uses the consumer member code **22** to access the consumer's profile and uses the consumer's activity and the consumer's profile to select and send an appropriate advertisement **30** to the consumer computer **12**.

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Proceeding to state **312**, the process combines the electronic page **32** from the content provider computer **14** and the selected advertisement **30** from the advertisement provider computer **18** into a displayable page. Once the combined page has been displayed to the consumer, the process ends at end state **314**.

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In a preferred embodiment, the activity detection system **13** provides the latest event code to the consumer's computer **12** and the consumer's computer then transmits an updated consumer event code to the advertisement provider's computer in state **313**.

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It should be recognized that state **313** allows for the provision of a custom-selected advertisement in response to the consumer's change in detected activity even without requesting an additional electronic page **32** from the content provider computer **14**.

III. Implementation Of The Preferred Interactive Communication System

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A. The Communication Medium

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Focusing now on the communication medium **20** as shown in FIG. 2, the presently preferred computer medium includes the Internet **33** that is a global network of computers. The structure of the Internet **33**, which is well known to those of ordinary skill in the art, includes a network backbone with networks branching from the backbone. These branches, in turn, have networks branching from them, and so on. Routers move information packets between network levels, and then from network to network, until the packet reaches the neighborhood of its destination. From the

destination, the destination network's host directs the information packet to the appropriate terminal, or node.

- In one advantageous embodiment, the Internet routing hubs comprise domain name system (DNS) servers, as is well known in the art. DNS is a Transfer Control Protocol/Internet protocol (TCP/IP) service that is called upon to translate domain names to and from Internet Protocol (IP) addresses. The routing hubs connect to one or more other routing hubs via high speed communication links.
- One of ordinary skill in the art, however, will recognize that a wide range of interactive communication mediums can be employed in the present invention. For example, the communication medium **20** can include interactive television networks, interactive radio networks, telephone networks, wireless data transmission systems, two-way cable systems, customized computer networks, interactive kiosk networks, automatic teller machine networks, and the like.

- In addition to the Internet **33**, the communication medium **20** may also contain Internet service providers ("ISP") **34**. An ISP **34** is a computer system that provides Internet **33** access to the consumer computers. Examples of ISPs **34** include American On-line, the Microsoft Network, Prodigy, and Compuserve to name a few. Many users pay monthly access fees to the ISP **34** because the ISP **34** provides local telephone connections, a variety of help services and an organized format for accessing the Internet **33**.
- The ISPs **34** are optional, and in some cases, the consumer computers **12** may have direct access to the Internet **33**. For example, the consumer computers **12** may be connected to a local area network that in turn is directly connected to the Internet **33**. It should be understood that the local area network may also connect to the Internet **33** via a conventional telephone line; however, since local area networks typically have a

higher volume of data traffic, it is advantageous to include a high-speed connection to support the volume of information that the local area network will transfer to and from the Internet 33.

- 5 As further depicted in FIG. 2, an ISP 34 connects a consumer computer 12 to the Internet 33. Typically, the ISP 34 is connected to an Internet routing hub via a high speed communications link. The communication links, in turn, connect to the content provider computers. When a consumer desires to access information available on the Internet 33 via an ISP 34, the consumer initiates a connection with the ISP 34 from
10 his or her consumer computer 12.

For example, the consumer invokes a browser that executes on the consumer computer 12. The browser, in turn, establishes a communication link directly with the Internet 33 or with the ISP 34 via a communications link. Once connected to the ISP
15 34, the consumer can direct the browser to access information provided by one of the content provider computers 14. The ISP 34 then communicates with the Internet 33 to establish a communications link between the consumer computer 12 and the desired content provider computer 14.

- 20 One popular part of the Internet 33 is the World Wide Web. The World Wide Web contains different computers that store HTML documents capable of displaying graphical and textual information. The content provider computers 14 which provide information on the World Wide Web are typically called "websites." A website is defined by an Internet address that has an associated electronic page. Generally, an
25 electronic page is a document that organizes the presentation of text, graphical images, audio and video. As discussed above, these websites are operated by a wide variety of content provider computers 14.

B. The Consumer Computers

Focusing now on the consumer computer **12** as illustrated in FIG. 4, the consumer computer **12** is a device that allows a consumer to interact with the communication medium **20**. In the preferred embodiment, the consumer computer **12** is a conventional computer that is equipped with a conventional modem or router. Preferably, the consumer computer **12** runs an appropriate operating system such as the Microsoft® Windows® 95, Microsoft® Windows 98, Microsoft® Windows® NT, the Apple® MacOS®, or IBM® OS/2® operating systems. As is conventional, the preferred operating system includes a TCP/IP stack that handles all incoming and outgoing message traffic passed over the Internet **33**.

In other embodiments, the consumer computer **12** could, for example, be a computer workstation, a local area network of individual computers, an interactive television, interactive radio system, an interactive kiosk, a personal digital assistant, internet appliances, network-connected electronic white goods, interactive wireless communication devices or the like which can interact with the communication medium **20**. While the operating systems of these systems will differ, they will continue to provide the appropriate communications protocols needed to establish communication links with the communication medium **20**.

In the preferred embodiment, the consumer computer **12** utilizes several operational modules including a consumer browser module **40**, a consumer event code **21**, a consumer member code **22** and an advertising storage medium **44**. The consumer browser module **40** (hereinafter referred to as the consumer browser) is a software program that allows a consumer to access different content providers through the communication medium **20**. In the preferred embodiment, the consumer browser **40** is Netscape® Navigator developed by Netscape, Inc. or Microsoft® Internet Explorer developed by Microsoft Corporation. One of ordinary skill in the art, however, will

recognize that numerous other types of access software could also be used to implement the present invention. These other types of access software could, for example, be other types of Internet browsers, custom network browsers, two-way communications software, cable modem software, point-to-point software and the like.

The consumer event code module **21**, hereinafter referred to as the event code **21**, stores a code that identifies the consumer's activity, either current or previous, as detected by a local event detection system. In the preferred embodiment, the consumer event code **21** is a set of alpha-numeric characters that represent a particular activity selected from a predetermined set of activities. The predetermined set of activities and/or locations, and the associated codes, may be as broad or detailed as can be detected by the local event detection system and as will be found to be useful for targeted advertisements.

The consumer member code module **22** stores a code that uniquely identifies each consumer. In the preferred embodiment, the consumer member code module **22**, which is hereinafter referred to as the consumer member code **22**, is a set of alpha-numeric characters. The consumer member code **22**, as is discussed in more detail below, is assigned when the consumer registers with the advertisement provider computer **18**. Thus, when a consumer registers with the advertisement provider computer **18**, the consumer is assigned a unique member code. A copy of the consumer member code **22** is then stored on the consumer computer **12** in a "cookie".

A "cookie" is a small piece of information that a web server (via a CGI script) can store with a web browser and later read back from that browser. This is useful for having the browser remember some specific information across several pages; for example, when the consumer browses through a "virtual shopping mall" and add items to his "shopping cart," a list of the items he has picked up is kept in the

consumer browser's cookie file so that the consumer can pay for all the items at once he has finished shopping.

To create a cookie, a web server sends a "Set-Cookie" HTTP header line in response to a URL access from a browser: Set-Cookie: NAME=VALUE; expires=DATE; path=PATH; domain=DOMAIN.sub.-- NAME; secure

NAME and VALUE are the actual information to include in the cookie. DATE is the time at which the cookie information expires and will be "forgotten" by the browser.

DOMAIN is a host or domain name for which the cookie is valid. PATH specifies a subset of the URLs at that server for which the cookie is valid. If "secure" is included in the cookie, then the cookie will only be transmitted over a secure network connection. All of these fields except NAME=VALUE are optional.

Whenever the browsing software sends an HTTP request for a URL on a server for which it has stored cookies, it includes a line in the form: Cookie: NAME=VALUE; NAME=VALUE; . . . which lists all cookies that apply to that particular URL. The following is a sample CGI program (a Unix shell script) that sends a cookie to a particular URL.

```
#!/bin/sh
echo "Content-type: text/html"
echo "Set-cookie: codeno=12345A; expires=Thursday, Jan. 1, 1998-12:00:00 GMT"
echo ""
echo "& 1 t; H1 & gt; Here is the member code number & 1 t; /H1 & gt;"
"Codeno=123456" (This is stored with the browser)
(end)
```


The following is an exemplary script that reads a cookie:

```
#!/bin/sh
echo "Content-type: text/html"
5 echo ""
echo "Here is the member code: & 1 t; P & gt;"
echo "$HTTP.sub.-- COOKIE & 1 t; P & gt;"
(end)
```

- 10 An advertising storage medium **44** can also be included in the consumer computer **12**, but is optional. In one embodiment, the advertising storage medium **44** is a compact disk drive and a compact disk. The compact disk stores a variety of advertisements that can be retrieved and displayed by the consumer computer **12**. The advertising storage medium **44**, however, can consist of a wide range of data storage devices
- 15 including, but not limited to, digital video devices, floppy disks, hard drives, system memory, tape drives, Personal Computer Memory Card Interface Adapter cards (PCMCIA cards), and the like. As is discussed in more detail below, in one embodiment of the present invention, the consumer computer **12** receives an advertisement command which directs the consumer computer **12** to retrieve and
- 20 display one of the advertisements stored on the advertising storage medium **44**.

Preferably, the advertisement command identifies a particular location on the advertising storage medium **44**, such as the particular track and sector where an advertisement is located. Because current communications systems transfer data at

25 much slower rates than local storage devices, the consumer computer **12** can retrieve an advertisement from the advertising storage medium **44** much faster than obtaining the advertisement directly from the advertisement provider computer **18**. Accordingly, a short advertisement command can be sent which specifically retrieves a particular

advertisement from the advertising storage medium, which significantly reduces transmission times and response times across the communication medium **20**.

C. The Content Provider Computers

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A wide range of information and services are available to the consumers by accessing information stored on different content provider computers **14**. In the preferred embodiment, the content provider computers **14** are websites on the World Wide Web. Preferably, the content provider computer **14** is a conventional computer that is
10 equipped with a communications link to the Internet **33**. Preferably, the content provider computer **14** runs an appropriate operating system such as Unix, Microsoft® Windows® 3.1, Microsoft® Windows 95, Microsoft® Windows® NT, the Apple® MacOS® or IBM® OS/2® operating system. As is conventional, the preferred
15 operating system includes a TCP/IP stack that handles all incoming and outgoing message traffic passed over the Internet **33**.

The content provider computers **14** can, however, include a wide range of devices with provide information, graphics or text. These devices may contain specialized operating systems that communicate using their respective communications protocols.
20 For example, the content provider computers **14** can include, network servers, video delivery systems, audio-visual media providers, television programming providers, telephone switching networks, wireless communication centers and the like.

As illustrated in FIG. 4, the content provider computer **14** in the preferred
25 embodiment delivers information to the consumer computer **12** by utilizing a variety of operational modules. These modules include a content server module **50** and one or more electronic pages **32**.

The preferred content server module **50**, which is hereinafter referred to as the content server **50**, is a standard Web server software system that serves electronic pages. The content server **50** may be, for example, Netscape's Internet Server software, Microsoft's Internet Server software or the like. Such server software is configured to
5 process messages from the consumer computers **12** and display desired electronic pages. In particular, the server software sends copies of HTML pages to each consumer computer **12** that accesses the content provider computer **14**.

The electronic page module **32** within the content provider computer **14**, which is
10 hereinafter referred to as the electronic pages **32**, provides an organizational structure for presenting information to the consumer. In addition, each electronic page **32** contains an advertisement insert **56**. The advertisement insert **56** is a place-holder configured to contain the selected advertisement **30** generated by the advertisement provider computer **18**. In the preferred embodiment, the electronic pages **32** are
15 HTML documents which contain HTML encoding.

HTML encoding is a script encoding language that is used to define document content information. As is well known in the art, HTML is a set of conventions for marking portions of a document so that, when accessed by a browser, each portion appears
20 with a distinctive format. The HTML indicates, or "tags," portions of the document (e.g., the title, header, body text, etc.). In the preferred embodiment, the advertising insert **56** contains the advertisement request **26**. The advertisement request **26** references a content provider CGI script **64** that exists on the advertisement provider computer **18**. Preferably, the advertising request **26** is an HTML tag which identifies
25 1) the content provider script and 2) the content provider member code and 3) the Internet address or URL of the advertisement provider computer **18**.

As discussed in more detail below, when each content provider **14** registers with the advertisement provider computer **18**, the advertisement provider computer **18** creates

a unique content provider member code. In addition, the advertisement provider computer 18 creates a custom content provider CGI script 64 that stores the content provider member code. This custom content provider CGI script 64 is hereinafter referred to as the content provider script 64. When the advertisement provider computer 18 executes the content provider script 64, the advertisement provider computer 18 identifies which content provider computer 14 is being accessed by a consumer computer 12.

D. The Advertisement Provider Computer

The advertisement provider computer 18 shown in FIG. 4 maintains consumer information and selects advertisements 30. In the preferred embodiment, the advertisement provider computer 18 is a website connected to the World Wide Web. Preferably, the advertisement provider computer 18 is a conventional computer that is equipped with a communications link to the Internet 33. Preferably, the advertisement provider computer runs an appropriate operating system such as Unix, the Microsoft® Windows® 3.1, Microsoft® Windows 95, Microsoft® Windows® NT, the Apple® MacOS®, the IBM® OS/2® operating systems or the like. As is conventional, the preferred operating system includes a TCP/IP stack that handles all incoming and outgoing message traffic passed over the Internet 33.

The advertisement provider computer 18 can, however, include a wide range of mechanisms for providing registration services and selected advertisement 30. These devices may contain specialized operating systems that communicate with their respective communication medium using the appropriate communications protocols. For example, the advertisement provider computers 18 can include, a server within a computer network, a provider of video delivery systems, audio-visual media server, a television programming provider, a computer connected to a telephone switching network, a computer server in a wireless communication center and the like.

The advertisement provider computer 18 utilizes a variety of modules to store customer information and to select advertisements 30. The modules include a registration module 60, an advertising module 62, a registration database 68, an advertisement database 70 and an accounting database 72. The registration module 60, as is discussed in more detail below, allows customers to register with the advertisement provider computer 18.

In the preferred embodiment, the registration module 60 is an enhancement to a standard Web server. The standard Web server software may be, for example, Netscape's Internet Server software, Microsoft's Internet Server software or the like. Such server software is configured to process messages from the consumer computers 12.

In the preferred embodiment, the registration module 60 further enhances the standard server software by providing software routines that (1) assign the consumer member codes 22, (2) transfer each consumer member code 22 to the consumer computers 12, (3) assign the content provider member codes, (4) create the content provider scripts and (5) transfer the advertising request 26 to the content provider computers 14. This enhanced functionality is preferably implemented with the content provider scripts or alternatively, is integrated with the server software. For example, the enhancements can be integrated as application programming interfaces that are combined with the Netscape Server Application Programming Interface (NSAPI) or the Microsoft Internet Server Application Program Interface (ISAPI).

When a consumer computer 12 or a content provider computer 14 first accesses the advertisement provider computer 18, the registration module 60 displays registration information. In particular, the server software displays copies of HTML pages to each

consumer computer **12** and content provider computer **14** that desires to register with the advertisement provider computer **18**.

Thus, when a consumer registers with the advertisement provider computer **18**, the registration module **60** displays an HTML document which prompts the consumer to enter demographic data. The demographic data can contain a wide variety of information, including, but not limited to, age, gender, income, career, interests, hobbies, consumer preferences, the account number of the consumer's Internet provider, other account information, etc. Once the consumer enters the demographic data, the registration module **60** stores the demographic data as a profile in the registration database **68**. Alternatively, the demographic data can be collected over time by tracking the consumer's choice of content providers, tracking responses to advertisements, and the like.

The registration module **60** also, as explained in more detail below, assigns the consumer a consumer member code **22**. The registration module **60** not only stores the consumer member code **22** in the registration database **68**, but also sends a copy of the consumer member code **22** to be stored in a cookie on the consumer's computer **12**.

When a content provider registers with the advertisement provider computer **18**, the registration module **60** displays a HTML document which prompts the content provider to enter demographic data. The demographic data includes, but is not limited to, the content provider's website address, the name of the content provider, the type of products and services sold by the content provider, the size of the content provider, the content provider's account information, etc. Once the content provider enters the demographic data, the registration module **60** stores the data in the registration database **68**.

The registration module **60** also assigns the content provider a content provider member code **54**, stores the content provider member code **54** in the registration database **68**, creates the custom content provider scripts **64**, and creates the advertisement request **26**. The registration module **60** also is configured to send the advertisement request **26** to the content provider computer **14**.

Preferably, the registration database **68** is implemented with Structured Query Language (SQL) code. The structured query language is a language standardized by the International Standards Organization (ISO) for defining, updating and querying relational databases. For example, the registration database can be implemented with any number of commercial database programs including Microsoft® Access, Oracle's relational database products and the like.

Focusing now on the advertising module **62** illustrated in FIG. 4, the advertising module **62** processes messages from the consumer computers **12**. In the preferred embodiment, the advertising module **62** is a standard Web server. The advertising module **62** may be, for example, Netscape's Internet Server software, Microsoft's Internet Server software or the like. Such server software is configured to process advertisement requests **26** from the consumer computer **12**.

In the preferred embodiment, the advertisement requests **26** are embedded into the content provider's electronic documents **32**. When the consumer computer **12** receives the advertisement requests **26**, the consumer computer **12** executes the advertisement request **26**. In the preferred embodiment, the advertisement request **26** is an HTML tag that directs the consumer computer **12** to establish a communication link with the advertisement provider computer **18**. In addition, the HTML tag in the advertisement request **26** directs the advertising module **62** to execute the content provider script **64** associated with the accessed content provider **14**.

The advertising module **62** executes the content provider script **64** and obtains the content provider member code. In addition, the advertising module **62** uses the content provider member code **54** to obtain information about the content provider. In addition, the advertising module **62** obtains the consumer event code **21** and the consumer member code **22** from the consumer computer **12**. The advertising module **62** uses the consumer member code **22** to obtain a consumer profile from the registration database **68**. As discussed in more detail below, the advertising module **62** then uses the consumer event code **21** to select an appropriate advertisement from the advertisement database **70**. In another embodiment, the advertising module **62** uses two or more criteria selected from the consumer activity, the consumer profile, and the content provider information as the basis for selecting an appropriate advertisement from the advertisement database **70**. The advertising module **62** then sends the selected advertisement **30** directly to the consumer computer **12** to be incorporated into an electronic page **32** from the content provider computer **14**.

Focusing now on the advertisement database **70** illustrated in FIG. 4, the advertisement database **70** contains numerous advertisements that have been designed for consumers involved in different types of activities. For example, if the consumer code for washing laundry is received, then an advertisement can be selected for promoting a laundry detergent or stain remover. Similarly, the advertising database **70** may contain advertisements that have been designed for different types of consumers. For example, one version of an advertisement can be directed to selling fruit juice to children. Other versions of the advertisement, can be directed to selling the same fruit juice to teenagers, adults, or different demographic groups. The different versions of the advertisements are organized in the advertisement database **70** into different demographic categories that can be defined by the advertisement provider. Most preferably, the advertisement database **70** will list available advertisements and identify what consumer activities and demographic criteria should be used to select each advertisement. For example, an event code that indicates a

large flow of water to an outdoor spigot could indicate that the consumer is watering the lawn, but based upon the consumer profile, such as income level, the advertising module may select to advertise a discount on garden hose to a low income consumer and an upscale electronic controller for a sprinkler system to a high income consumer.

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In addition, in the preferred embodiment, the advertisements are HTML compatible, such that an advertisement can contain hyper-links to other information. These hyper-links can contain for example, the URL of another content provider computer **14** which contains more information about the advertised product, sales pitches, electronic catalogs, purchase order forms and the like. For example, if after viewing a selected advertisement **30**, a consumer wishes to obtain additional information about an advertised product or service, the consumer can simply select the hyper-link in the custom advertisement **30** and be immediately transported to a different content provider computer **14** that contains more advertising information.

15

In the preferred embodiment, the advertisement database **70** is implemented with Structured Query Language (SQL) code. The structured query language is a language standardized by the International Standards Organization (ISO) for defining, updating and querying relational databases. For example, the advertisements can be organized and stored in the advertisement database **70** with any number of commercial database programs including Microsoft® Access, Oracle's relational database products and the like.

20

The advertisement provider computer **18** stores advertisement audit information in the accounting database **72**. In the preferred embodiment, the advertisement audit information includes which advertisements are viewed by consumers, how often the advertisements are viewed, which consumers have viewed an advertisement, the number and type of advertisements a particular consumer has viewed, which content providers are requesting custom-selected advertisements, the number and type of

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advertisements which are being displayed by a particular content provider computer 14, etc.

Maintaining a record of the advertisement audit information in the accounting database 72 provides a number of advantages. For example, because the accounting database 72 maintains a record of which advertisements have been viewed by consumers, advertisers can be billed based on actual delivery of the advertisements to pertinent consumers. Furthermore, advertisers can be billed based on how often a consumer involved in a targeted activity or demographic group views the advertisements.

In addition, the ability to monitor the number of advertisements displayed by a particular content provider computer 14 provides a number of advantages. For example, the advertisement provider can pay the content provider based on the volume of advertisements actually displayed by the content provider computer 14. This frees the content providers from having to generate advertising data, from having to individually contact advertisers, from having to negotiate advertising payment fees, and from having to maintain an advertising administrative staff.

Furthermore, because the preferred embodiment also is capable of storing a consumer's ISP account number in the registration database 68, the preferred embodiment can monitor the number of advertisements viewed by consumers associated with a particular ISP 34. Accordingly, the invention can pay an ISP 34 based on the number of advertisements viewed by its consumers. The ISP 34 can then use this advertising revenue to reduce consumer access fees. Alternatively, the preferred embodiment can pay a consumer for viewing advertisements by crediting a consumer's ISP account.

In addition, because the preferred embodiment also is capable of storing a consumer's digital cash account, the preferred embodiment can pay the consumer with digital cash each time the consumer views an advertisement. This allows the consumer to obtain digital cash that the consumer can use to purchase other goods and services offered for sale on the Internet **33**.

IV. Registration And Custom-Selected Advertisement Processing

FIG. 4 also illustrates flow of information when (1) a consumer registers with the advertisement provider computer **18**, (2) a content provider registers with the advertisement provider computer **18**, and (3) processing a custom-selected advertisement **30**. The data flow sequence for the consumer registration process is illustrated with event A. The data flow sequence for the content provider registration process is illustrated with event B. The data flow sequence for the selected advertisement processing is illustrated with events C through F.

With reference to event A, the consumer computer **12** registers with the advertisement provider computer **18** by first establishing a communications link with the advertisement provider computer **18**. The flow diagram corresponding to event A is illustrated in FIG. 5. Beginning in a start state **500** in FIG. 5, the preferred embodiment of the present invention proceeds to state **502**. In state **502**, the consumer directs his consumer computer **12** to communicate with the advertisement provider computer **18**. In particular, during state **502**, the consumer inputs the URL of the advertising provider computer **18** into his consumer browser **40**. The consumer browser **40** then establishes a link with the registration module **60**.

Upon establishing a link with the registration module **60**, the registration module **60** displays a HTML document which invites the consumer to input demographic information. Proceeding to state **504**, the consumer enters information which

includes, but is not limited to, age, gender, income, career, interests, hobbies, consumer preferences, the account number of the consumer's ISP **34**, other account information, etc.

- 5 Proceeding to state **506**, the registration module **60** assigns the consumer a consumer member code **22**. Each consumer is assigned a separate consumer member code **22**. Preferably, the consumer member code **22** comprises letters and numbers that uniquely identify the consumer. In the preferred embodiment, the registration module **60** assigns the consumer member code **22** with a CGI script that generates unique
- 10 consumer member codes **22**.

- Proceeding to state **508**, the registration module **60** stores the consumer member code **22** and the consumer's demographic data in the registration database **68**. In the preferred embodiment, the registration module **60** uses standard structured query
- 15 language instructions to add the consumer data and the consumer member code **22** to the registration database **68**.

- Proceeding to state **510**, the registration module **60** then transfers the consumer member code **22** to the consumer computer **12**. In the preferred embodiment, the
- 20 registration module uses standard HTTP transfer procedures to transfer the consumer member code **22** to a cookie on the consumer computer **12**.

- Proceeding to state **512**, the consumer browser **40** in the consumer computer **12** receives the consumer member code **22** and stores them on a computer accessible
- 25 media. In the preferred embodiment, the consumer browser stores the consumer member code **22** in the consumer browser's Cookie. Proceeding to end state **514**, the consumer computer **12** disconnects from the advertisement provider computer **18**.

With reference to event B illustrated in FIG. 4, the content provider computer registers with the advertisement provider computer **18** by first establishing a communications link with the advertisement provider computer **18**. The flow diagram corresponding to Event B is illustrated in FIG. 6. Beginning in a start state **600**, the
5 preferred embodiment of the present invention proceeds to state **602**. In state **602**, the content provider directs his content provider computer **14** to establish a communications link with the registration module **60** in the advertisement provider computer **18**.

- 10 Upon establishing a communications link with the registration module **60**, the registration module **60** displays a HTML document which invites the content provider to input demographic information. Proceeding to state **604**, the content provider enters information which includes, but is not limited to, the content provider's website address, the name of the content provider, the type of products and services sold by
15 the content provider, the size of the content provider, the content provider's account information, etc.

- Proceeding to state **606**, the registration module **60** assigns the content provider a content provider member code **54**. Each content provider is assigned a unique content
20 provider member code **54**. Preferably, the content provider member code **54** comprises letters and numbers that uniquely identify the content provider. In the preferred embodiment, the registration module **60** assigns the content provider member code **54** with a CGI script that generates unique content provider member codes **54**.

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Proceeding to state **608**, the registration module **60** stores the content provider member code **54** and the content provider demographic data in the registration database **68**. In the preferred embodiment, the registration module **60** uses standard

structured query language instructions to add the content provider member code **54** and content provider data to the registration database **68**.

Proceeding to state **610**, the registration module **60** then creates the content provider script **64**. Each content provider script corresponds to one of the content providers. In the preferred embodiment, the content provider script **64** contains the content provider member code. During state **610**, the advertisement provider computer **18** creates the advertising request **26**. Preferably, the advertising request **26** contains an HTML tag that identifies the URL of the advertising provider computer **18** and the content provider script assigned to the content provider. The registration module **60** uses standard HTTP transfer procedures to transfer the advertising insert **56** to the content provider computer **14**.

Proceeding to state **612**, the content provider computer **14** stores a copy of the advertisement request **26**. Moving to state **614**, the content provider computer **14** creates HTML electronic pages **32** which incorporate the advertising insert **56** and the advertisement request **26**. The advertisement insert **56** defines the location where the selected advertisement **30** will appear in an electronic page **32**. The advertisement request **26**, on the other hand, references the content provider script **64** existing on the advertisement provider computer **18**. The electronic pages **32** also include the information the content provider desires to convey to the consumers. Proceeding to end state **616**, the content provider computer **14** disconnects from the advertisement provider computer **18**.

As show in the high level data flow diagram of FIG. 4, events C through F illustrate the process of displaying custom-selected advertisements **30** in the preferred embodiment of the present invention. In event C, the consumer computer **12** establishes a communications link with the content provider computer **14**. In event D,

the content provider computer **14** sends the electronic page **32** to the consumer computer **14**.

In event E, the consumer computer **12** processes the advertisement insert **56** in the electronic page **32**. As explained above, the advertisement request **26** is an HTML tag that identifies the URL of the advertisement provider computer **18** and the content provider script **64** existing in the advertisement provider computer **18**. When the consumer browser module **40** processes the advertising insert **56**, the advertising insert **56** directs the consumer browser module **40** to establish a communications link with the advertisement provider computer **18**.

Upon establishing the communications link, the HTML tag in the advertising insert **56** directs the advertising module **62** to execute the identified content provider script **64**. The advertisement provider computer **18** obtains the content provider member code from the content provider script **64**. In addition, the advertising module obtains the consumer event code **21** and the consumer member code **22** from the consumer computer **12**.

In event F, the advertisement provider computer **18** uses the consumer member code **22** to access the consumer's profile in the registration database **68**. The advertisement provider computer **18** processes the consumer activity and profile to select an appropriate advertisement from the advertisement database **70**. The advertisement provider computer **18** then sends the selected advertisement **30** directly to the consumer computer **12**. The consumer's computer then merges and displays the electronic page **32** and the selected advertisement **30** to the consumer. In addition, during event F, the advertisement provider computer **18** stores the advertising audit information which specifies which advertisement was sent to the consumer computer **12**, which consumer computer **12** received the advertisement, which consumer viewed the advertisement and which ISP **34**, if any, provided Internet **33** access to the

consumer computer **12**. As discussed above, this information is stored to the accounting database **72**.

5 The operational states that occur during Events C through F will now be discussed in detail. FIG. 7 illustrates a flow chart of the operational states that occur when displaying a selected advertisement **30** to a consumer. Beginning in a start state **700**, the consumer accesses the communications system in state **702**. In the preferred embodiment, the consumer invokes the consumer browser **40** on his or her computer. The consumer then directs the consumer browser **40** to access the URL of the desired content provider computer **14**.

15 Proceeding to state **704**, the consumer browser **40** uses the TCP/IP Internet protocols to establish a communications link with the content server **50** in the content provider computer **14**. The content provider computer **14** then uses the HTTP protocols to transfer an electronic page **32** to the consumer computer **12**.

20 Proceeding to state **706**, the consumer browser **40** processes the electronic page **32**. While processing the electronic page **32**, the consumer browser encounters the advertising insert **56** with its HTML tag. The advertising insert **56** directs the consumer computer **12** to send an advertisement request **26** to the advertisement provider computer **18**. In the preferred embodiment, the HTML tag in the advertising insert **56** contains the URL of the advertising provider computer **18** and the content provider script **64** assigned to the content provider **14**. Thus, the advertisement request **26** establishes a communications link with the advertisement provider computer **18** and invokes the identified content provider script **64**.

Proceeding to decision state **707**, the advertisement provider computer **18** obtains one or more consumer event code from the consumer computer **12**. The invention encompasses the possibility that the activity detection system may indicate more than

one activity at a time, such as cooking and doing laundry, and the plurality of associated event codes may be obtained and used to great advantage by the advertising module in selected an advertisement.

5 Proceeding to decision state **708**, the advertising module **62** in the advertisement provider computer **18** directs the consumer browser module **40** to send a copy of the Cookie that contains the consumer member code **22**. The advertising module **62** extracts the consumer member code **22** from the Cookie and determines whether the consumer has registered with the advertisement provider computer **18**. If the Cookie
10 does not contain a consumer member code **22**, the advertising module **62** proceeds to state **709** where the consumer is asked whether or not the consumer desires to become a member. If the consumer wants to become a member, then the module proceeds to state **710** and if the consumer does not want to become a member then the module proceeds to state **712**. However, if it is determined in state **708** that the Cookie does
15 contain a consumer member code **22**, then the advertising module **62** proceeds to state **711** to obtain and identify the consumer code before moving on to state **712**.

At state **710**, the advertising module **62** fills the advertising insert **56** with an advertisement that directs the unregistered consumer to register with the
20 advertisement provider computer **18**. If the consumer has registered with the advertisement provider computer **18**, the advertising module **62** proceeds to state **712**. In state **712**, the advertising module **62** processes the advertisement request **26**. This will be discussed in more detail below in reference to FIG. 8.

25 After the advertisement provider delivers the selected advertisement to the consumer in state **712**, the consumer computer receives the selected advertisement in state **714**. During state **714**, the consumer computer combines the selected advertisement with the electronic page that was requested by the consumer.

Proceeding to decision state **716**, the consumer views the electronic page **32** and the selected advertisement **30**. To the consumer, the electronic page **32** appears to contain the selected advertisement **30**. During decision state **716**, the consumer can decide to obtain additional information about the advertised goods or services by selecting the selected advertisement **30**. In the preferred embodiment, the selected advertisement **30** contains a hyper-link to more advertising information. If the consumer is not interested in the advertised goods or services, the consumer proceeds back to state **704** and begins the process of viewing another electronic page **32**.

During decision state **716**, if the consumer continues to view the electronic page **32**, the advertising module **62** continues to update the selected advertisements **30** that are seen on the consumer's computer **12**. For example, if a consumer views a particular electronic page **32** for more than a minute, the advertising module **52** can send a new selected advertisement **30**.

If the consumer desires to obtain more information about a good or service appearing in a selected advertisement **30**, the consumer selects the selected advertisement **30** and proceeds to state **718**. When the consumer selects the selected advertisement **30** during state **718**, the consumer control module **42** sends a message to the advertising module **62** that the consumer has selected the selected advertisement **30**. In response, the advertising module **62** stores the message in the accounting database **72**.

The advertising module **62** can use such information to determine which advertisements are effective. In addition, the information allows the advertising module **62** to monitor what goods and services the consumer particularly desires. Furthermore, the advertising module **62** can charge the advertisers, typically the product manufacturer or service company, additional amounts whenever a consumer seeks to obtain additional advertising information. The advertising module **62** can then distribute the revenue as a bonus to the content providers and consumers. This

gives the consumers additional incentive to seek more information about advertised goods and services.

Proceeding to decision state **720** the consumer decides to access other content

5 provider computers **14** or to stop browsing the Internet **33**. If the consumer desires to access other content provider computers **14**, the process moves back to state **704**.

However, if the consumer desires to end browsing the Internet **33**, the process moves to end state **722** wherein the consumer browser **40** is exited.

10 In FIG. 8, a detailed flow chart of the operational states which occur during process **712** are shown. Beginning in a start state **712**, the advertising module proceeds to state **800**. In state **800**, the advertising module **62** uses the consumer member code **22**, if any, to access the corresponding consumer preferences stored in the consumer's profile in the registration database **60**. The advertising module **62** then processes the

15 consumer event code **21**, along with any available consumer profile, to determine the appropriate selected advertisement **30**. In the preferred embodiment, the advertising module **62** uses well-known advertising techniques to categorize the consumer into a particular demographic group based on the consumer's activities or preferences. In another embodiment, the advertising module **62** identifies advertisements that

20 correspond to specific preferences. In yet another embodiment, the advertising module **62** focuses on a subset of advertisements and then selects the most appropriate advertisement in the subset. In still other embodiments, the advertising module can be programmed to accommodate special sales and advertising promotions.

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Proceeding to state **802**, the advertising module **62** selects and retrieves the selected advertisement **30** from the advertising database and sends the selected advertisement **30** to the consumer. In the preferred embodiment, the selected advertisement **30** is stored in a HTML format, and the advertising module **62** uses the HTTP protocol to

send the selected advertisement **30** to the consumer computer **12**, where the selected advertisement **30** is displayed within the electronic page sent to the consumer computer.

- 5 Proceeding to state **804**, the advertising module **62** accesses the accounting database **72** and debits the appropriate advertiser account, credits the content provider account and credits the appropriate consumer account. In particular, the advertising module **62** stores the advertising audit information in the accounting database **72**. The advertising audit information includes the consumer event code, any consumer member code **22**
- 10 and the content provider member code **54**.

- With the advertising audit information, the advertising module **62** determines which advertiser should pay for the selected advertisement **30** and debits the appropriate advertiser account. In addition, the advertising module **62** credits the content
- 15 provider's account. Still further, the advertising module **62** credits the appropriate consumer account. In the preferred embodiment, the advertising module **62** also credits the consumer's ISP account number. Thus, the consumer's access charges are reduced each time a consumer views a selected advertisement **30**. In other
- embodiments, the advertising module **62** also credits a consumer's digital cash
- 20 account each time the consumer views a selected advertisement **30**. The consumer can then use the digital cash to purchase goods and services offered for sale on the Internet **33**.

- Upon updating the accounting database **72**, the advertising module proceeds to end
- 25 state **810** where it waits until the next advertisement request **26**.

V. Other Embodiments

FIG. 9 shows an alternative embodiment of the present invention wherein the advertisement provider computer 18 sends the selected advertisement 30 to the content provider computer 14.

Upon receiving the selected advertisement, the content provider incorporates the selected advertisement 30 into an electronic page 32. The content provider computer 14 then forwards the electronic page 32, combined with the selected advertisement 30 to the consumer computer 12. The consumer computer 12 then displays the electronic page 32 and selected advertisement 30 to the consumer. Because transferring the selected advertisement 30 from the advertisement provider computer 18 to the content provider computer 14 happens prior to sending the electronic page 32 to the consumer, the electronic page 32 appears to the consumer like all other electronic pages 32 on the Internet 33, except that it contains the selected advertisement 30 which has been pre-selected for that consumer.

The embodiment shown in FIG. 9 allows the selected advertisements 30 to be incorporated directly into the content provider's offerings. Thus, in addition to integrating the selected advertisements 30 in to an electronic page 32, the content provider computer 14 can integrate the selected advertisements 30 into offerings such as on-line games, video programming, internet radio, virtual reality environments and the like.

For example, assuming the content provider computer 14 offers consumers on-line games such as interactive car races. In this example, the content provider computer 14 can integrate the selected advertisements 30 into signs and billboards that appear in the interactive game. In other embodiments, the content provider computer 14 can integrate the selected advertisements 30 into three dimensional worlds defined by the

Virtual Reality Modeling Language (VRML 1.0). VRML 1.0 is a draft specification for the design and implementation of a platform independent language for virtual reality scene description. VRML 1.0 was released on May 26, 1995. For instance, the content provider computer **14** may display a three-dimensional mall, shopping center or city that displays selected advertisements **30** on virtual reality posters and billboards.

In another embodiment illustrated in FIGS. 10 and 11, the interactive communication system **10** includes the consumer computer **12**, the content provider computer **14** and the advertisement provider computer **18**. In Event A, the consumer computer **12** establishes a communication link with the content provider computer **12**, the consumer computer **12** then sends the consumer's member code **22** to the content provider computer **14**. A unique communications module **52** in the content provider is invoked each time a consumer computer accesses an electronic page **32**. The communications module **52** interacts with the content server **50**. In this embodiment, the communications module **52** is a content server plug-in and thus, plug-in tags can be programmed to invoke the communications module **52**.

Once invoked, the communications module **52** directs the content server **50** to obtain the consumer's event code or codes **21** and the member code **22** when a consumer accesses the content server **14**. Preferably, the consumer member code **22** is part of the information transmitted with the cookie from the consumer computer **12**. Thus, the communication module **52** analyzes the information stored in the cookie and determines the consumer member code **22**.

In event B, the content provider computer **14** sends an advertisement request **26** to the advertisement provider computer **18** via the communication medium **20**. The advertisement request contains the consumer event code **21**, the consumer member code **22** and the content provider member code **54**. When the content provider

computer **14** obtains the consumer's member code **22**, the content server **50** passes the consumer's member code **22** to the communication module **52** that analyzes the consumer member code **22** in order to determine whether the consumer has registered with the advertisement provider computer **18**. The communications module **52**
5 analyzes the codes **21**, **22** by determining whether they conform to a defined format. If not, the communications module **52** directs the content provider computer **14** to display the electronic page without a selected advertisement. If so, the communications module **52** directs the content server **50** to establish a communications link with the advertisement provider computer **18**.

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Thus, in this embodiment, the content provider computer **14** contains its own copy of the content provider member code **54**. Furthermore, the advertisement provider computer does not execute a content provider script **64** when accessed by the content provider **14**. Rather, the content provider **14** in this embodiment, sends a copy of the
15 content provider member code **54** to the advertisement provider along with every advertisement request **26**.

In event C, the advertisement provider computer **18** uses the consumer's member code **22** stored in the advertisement request **26** to access the consumer's profile in the
20 registration database **68**. Based on the consumer's activity and/or profile, the advertisement provider computer **18** selects an appropriate advertisement **30**. The advertisement provider computer **18** then sends the selected advertisement **30** to the consumer computer **12**.

25 In this embodiment, the advertising module **62** in the advertisement provider computer **18** runs a single program for every content provider computer **14** and incorporates the content provider member code **54** into the program being run. In this manner, the advertisement provider knows the identity of the consumer computer via

the consumer's member code **22** and the identity of the content provider computer **14** via the content provider's member code **54**.

In event D, the content provider **14** sends the requested electronic page **32** to the consumer computer **12**. Located in the consumer computer **12** is a software plug-in on the consumer computer **12** called the consumer control module **42** which merges the electronic page **32** and selected advertisement **30** into a single document. Preferably, the consumer control module **42** is a plug-in that works in conjunction with the consumer browser **40**.

In other embodiments, the consumer control module **42** in the consumer computer **12** is adapted to receive a Java plug-in from the content provider computer **14** that creates a separate window that can display selected advertisements **30** on the consumer computer **12**. The Java programming language is a robust, secure, architecture-neutral, portable, general-purpose programming language developed by Sun Microsystems. Java supports programming for the Internet **33** in the form of independent Java "applets".

In another embodiment, the consumer computer **12** stores the selected advertisements **30** on the advertising storage medium **44**. Rather than receiving a copy of the selected advertisement **30** over the Internet **33**, the consumer control module **42** receives an advertisement command that directs the consumer control module **42** to retrieve the selected advertisement **30** from the advertising storage medium **44**.

Focusing now on the flow charts illustrated in FIGS. 7 and 8, the advertising module **62** in the advertisement provider computer obtains the appropriate advertisement command from the advertisement database **70** during state **804**. The advertising module then sends the advertisement command to the consumer computer **12** in state **714**. During state **714**, the consumer control module **42** combines the selected

advertisement 30 identified by the advertisement command with the electronic page 32 and displays them to the consumer. As stated above, because current communications systems transfer data at much slower rates than local storage devices, the consumer computer 12 can retrieve a selected advertisement 30 from the advertising storage medium 44 much faster than obtaining the advertisement directly from the advertisement provider computer 18. Accordingly, a short advertisement command can be sent which specifically retrieves a particular advertisement from the advertising storage medium, which significantly reduces transmission times and response times across the communication medium 20.

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The activity detection systems suitable for use with the present invention monitor activity of the consumer and provides information representative of the activity to a dedicated system controller or the consumer computer 12. The detection system may be connected to electrical appliances or devices, such as door locks, security gates, lawn lights, speakers, any other switch-controlled device; plumbing related systems such as baths, showers, faucets, pools, spas, and fountains; analog sensors such as those for measuring temperature, humidity, pressure, light level, distance, vibration, air quality, or any other useful parameter; and digital sensors such as security sensors, pressure mats, driveway sensors, and status relays. Suitable activity detection systems are disclosed in U.S. Patent Nos. 5,086,385 and 6,108,685, which patents are incorporated by reference herein.

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It will be understood from the foregoing description that various modifications and changes may be made in the preferred embodiment of the present invention without departing from its true spirit. It is intended that this description is for purposes of illustration only and should not be construed in a limiting sense. The scope of this invention should be limited only by the language of the following claims.

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